

AMENDMENTS TO THE SPECIFICATION

Please replace Paragraphs [0008] and [0009] with the following paragraph rewritten in amendment format:

[0008] The application of external fields and gradients allows the physician to control the orientation and location of the distal tip of the catheter in the vessel at the treatment site. This permits the use of small and potentially single size catheters to treat either partial or total occlusions in the vasculature. In operation the device is moved to various treatment sites or locations in a vessel under the guidance of the MSS. The methods of the invention may be partially automated in the sense that the physician can image the current location of the device and program a desired location

~~_____~~**[0009]**~~_____~~ with the MSS and designate a location or orientation of the device in a vessel. The MSS system can provide feedback to the physician to help the physician direct the device as "planned" with the MSS workstation. Robotic control of the device is also contemplated wherein the motion of the device in the vessel is entirely under software control. In this instance physician observation and transducer feedback manages the procedure.

Please replace Paragraph [0011] with the following paragraph rewritten in amendment format:

[0011] Devices which rely on heat or which generate heat in the body may include fluid cooling to manage the distribution of heat, several devices with adjunctive fluid delivery are shown as illustrative of the invention.

Please replace Paragraph [0030] with the following paragraph rewritten in amendment format:

[0030] In Fig. 1 the distal tip 14 of the catheter 10 abuts a total occlusion 16. A guide wire 18 ~~shown in phantom~~, and sheath 20 may be used together to deliver the catheter 10 to the treatment site near the occlusion 16. Either or both of the guide wire or sheath may have a magnetic element 22 included in its design to assist in access to the treatment site. For instance the guide wire 18 may have a magnet 22

located at its distal tip. Similarly the sheath may have a magnetic tube 24 located at its distal tip. However, for the purpose of this disclosure the magnetic elements on the guide wire or sheath permit the applied field or gradient to orient the distal tip. In Fig. 1 the forces generated on the tip by an external magnet are shown by vectors indicated by reference numeral 9. The physician can advance the guide wire or sheath by pushing on the proximal end of end of the device with the distal tip direction determined in part by the magnetic forces represented at 9. The magnetic orientation of the tip coupled with physical motion applied to the proximal end of the device positions the device. The physical motion can be supplied by either the physician or a robotic element.

Please replace Paragraph **[0037]** with the following paragraph rewritten in amendment format:

[0037] Fig. 6 is an example of a "rapid exchange" delivery configuration for the thermal catheter 10. The distal tip 80 as an open lumen 82 which is relatively short and exits the side of the catheter body 84 at a location 86 distal of the proximal end of the device 10. This opening can receive a guide wire which can be used to position the device near the occlusion.

Please replace Paragraph **[0038]** with the following paragraph rewritten in amendment format:

[0038] Fig. 7 represents an ultrasound energy source catheter 92. The ultrasonic horn 94 is coupled to the waveguide 96 which in turn terminates in a distal tip 90. The waveguide may extend beyond the tip. ~~[[1]]~~In operation the delivery of ultrasound energy to the distal tip results in the formation of very small bubbles which dislodge the nearby plaque or other obstructing material. In this embodiment the distal tip 90 may be formed of Hiperco or other magnetically active material.

Please replace Paragraph **[0039]** with the following paragraph rewritten in amendment format:

[0039] Fig. 8 represents a hydraulic catheter 91 which uses the force of a jet of fluid emerging from nozzle 93 to disrupt the occlusive material. In this device the distal tip ~~[[100]]~~ **99** may be made from Hiperco or another magnetically active material.

Please replace Paragraph **[0041]** with the following paragraph rewritten in amendment format:

[0041] Fig. 10 shows the device ~~[[78]]~~ **10** of Fig. 5 in a sheath **130** that limits the movement of the distal tip 70. In this version of the device the sheath 130 positions the distal tip 70 near the guide magnets 134. This allows the physician to move the tip with the MSS and to control the exit of fluid from the sheath.

Please replace Paragraph **[0042]** with the following paragraph rewritten in amendment format:

[0042] Fig. 11 represents a multilumen construction where a fluid supply lumen 140 is provided to irrigate the tip 144 of the catheter 146. An offset guide wire lumen 148 ~~[[5]]~~ is provided for use~~[[d]]~~ with imaging and locating devices.